

Audit Efficiency and Effectiveness: A Matter of Focus

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Company

Manny Rosenfeld serves as Vice President, Internal Audit and CAE for Commercial Metals Company (CMC).

CMC is a Fortune500 Company which manufactures, recycles and markets steel and metal products, related materials and services through a network including steel mini-mills, steel fabrication and processing plants, construction-related product warehouses, a copper tube mill, metal recycling facilities, and marketing and distribution offices in the United States and in strategic overseas markets.

Manny joined CMC Internal Audit in June 2006 and manages a staff of 20 auditors. Prior to CMC, he was the VP of Internal Audit at TRW Automotive in Detroit and Navistar Corporation in Chicago, two Fortune 150 corporations. During his prior 20 years with Alcoa, he was a Senior Internal Audit Manager, Process Improvement Senior Manager, Quality Consultant, Manager of Capital and Acquisitions, Audit Supervisor, and Management Sciences Consultant. Over his career, he has led audit functions based in the US, Madrid, Sao Paulo, Bologna, Birmingham (UK), and Shanghai.



He is on the Board of Governors of the Dallas Chapter of the Institute of Internal Auditors. Manny has also been active on the Steering Committee for KPMG's Audit Executive Forum in Dallas, and is a member of Ernst and Young's Enterprise Risk Management Roundtable program in Dallas.

Manny is a Certified Internal Auditor (CIA) and has a Certification in Risk Management Assessment (CRMA). He is also a Lean / Six Sigma Black Belt. Manny is currently pursuing Certified Fraud Examiner (CFE) credentials. He graduated from Cornell University, where he received a BS in Industrial Engineering. He also earned a Master of Engineering in Management Sciences and a MBA from Cornell University.

Manny and his wife, Louise, enjoy cooking international foods and going to interesting restaurants. He also enjoys reading science fiction, mysteries, military history, and most branches of science. Manny has travelled extensively throughout the world and speaks fluent Spanish.



A Global Steel & Metals Company

- Metal Recycling Facilities
- Steel Minimills / Micro-mill
- Steel Fabrication Plants
- Heat Treating Plants
- Steel Fence Post Mfg. Plants
- Steel Service Centers
- Construction-Related Product Warehouses
- Copper Tube Minimill
- Pipe & Tube Mill
- Marketing and Distribution
- Strategic Investments

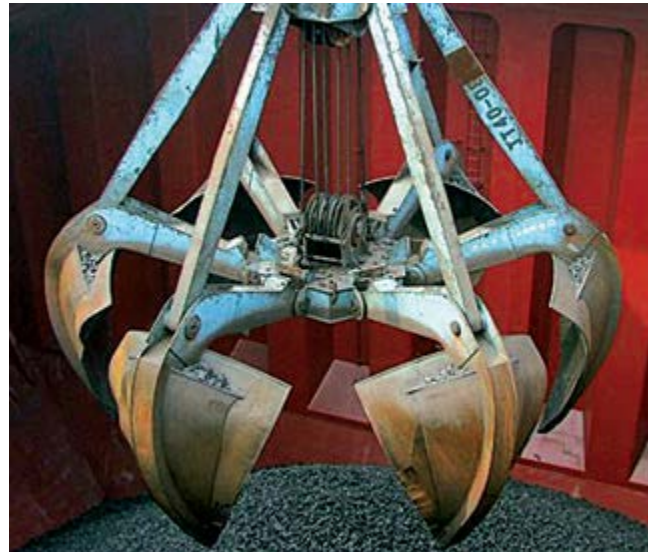
10,000 Employees Worldwide in 12 Different Countries.

Fortune 500. \$8-10 Billion in Sales.

Audit Department Size: 20



Commercial Metals Company



Efficiency and Effectiveness

- Efficiency is doing the work with fewer resources (hours, dollars, etc.).
- Effectiveness is meeting business objectives and/or customers requirements.
- Peter Drucker, Father of Modern Management:
“Efficiency is doing things right; effectiveness is doing the right things.”
- Any attempt to improve Efficiency, without an equal emphasis on Effectiveness, is likely to be counterproductive.

Efficiency and Effectiveness

- Efficiency & Effectiveness = **Productivity**
- The Internal Audit definition and professional standards call for a focus on effectiveness and efficiency, but in reality, most auditors tend to focus more on effectiveness.
- In general, Internal Auditors have to catch up with professional expectations and have a better balance of both effectiveness and efficiency.
- “There is nothing so useless as doing efficiently that which should not be done at all.”
 - Peter Drucker, Father of Modern Management

Founding Father of the Internal Audit Profession

**Count
deMney**

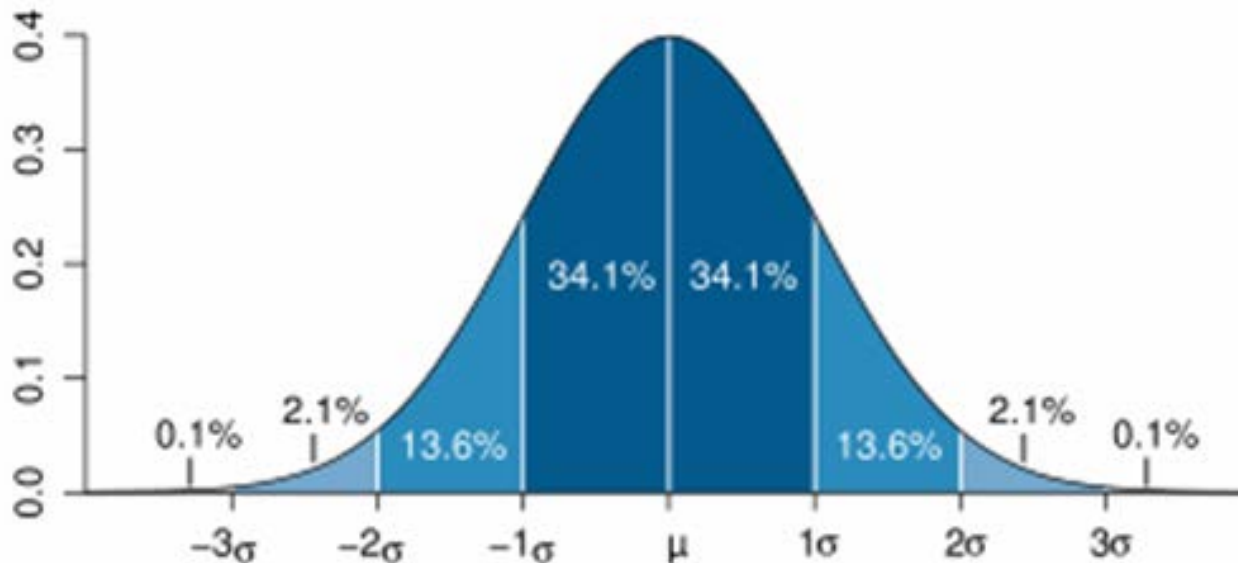


Founding Father of the Legal Profession

William Soo



Productivity as Viewed by an Industrial/Quality Engineer



Basic Costs of Quality

Prevention (process design):	\$1
Inspection (at process end):	\$10
Correction (Rework):	\$100
Customer Problem:	\$1,000

How Account Reconciliations are Generally Viewed by an Auditor and a Quality/Industrial Engineer

Situation: An Account Reconciliation is required every month. There is evidence that during the test month, it was done properly (check marks, notes, ketchup stains, etc.). All the differences were analyzed, reconciled, and corrected. Both preparer and approver signed and dated the reconciliation.

- **Internal Auditor:** Is happy that this key control is in place with supporting evidence and that Management takes it seriously. The process is effective at helping ensure financial reporting accuracy.
- **Industrial/ Quality Engineer:** Given criticality of objective, is OK that a reconciliation (inspection) test is being done. However, very unhappy that there are any reconciling differences and that considerable effort had to be made to understand the variances and correct them. In essence, inefficient ‘rework.’ Recommends a root-cause analysis of the variances, and forming a process improvement team to fundamentally fix the reconciling items.

Understand 'Rework' for Every Process Audited Before Assessment of Control Design or Testing

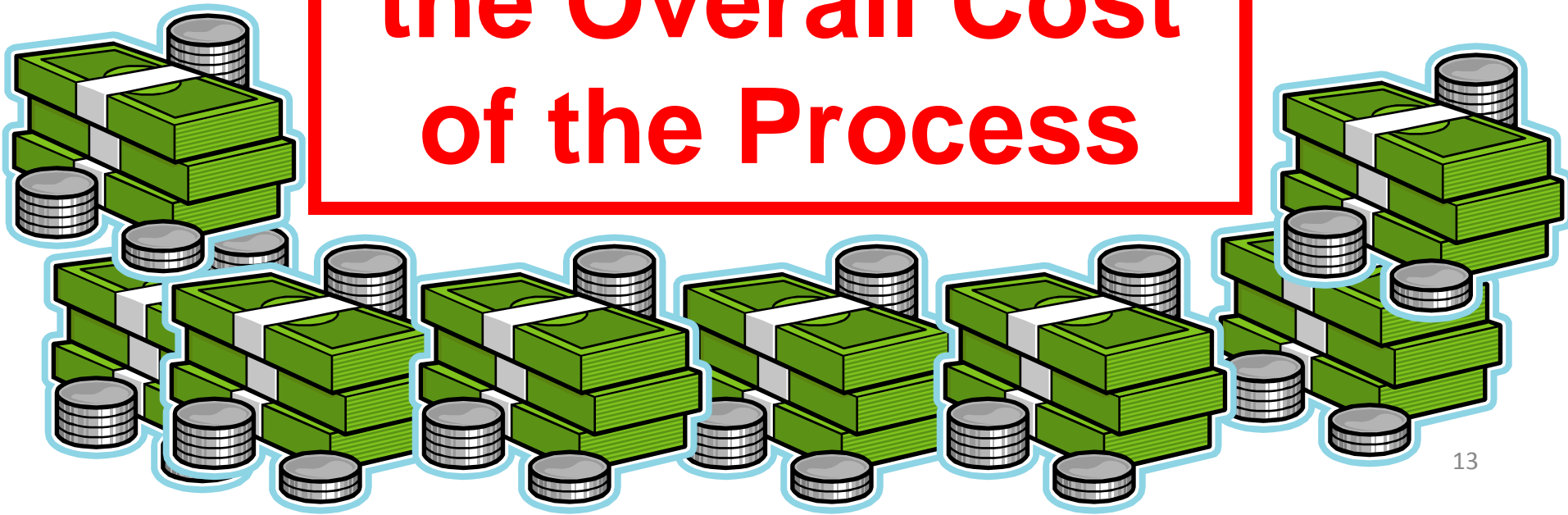
Other examples of 'Rework' in our company:

- Price adjustments
- Book to actual inventory adjustments
- Product returns
- Credit memos
- Customer complaints
- Invoice discrepancies

**Opportunities to
Improve Efficiency
And Effectiveness**

Cost of Defects (Rework) in an Administrative/Financial Process

Just a 5% Error Rate adds 40% to the Overall Cost of the Process



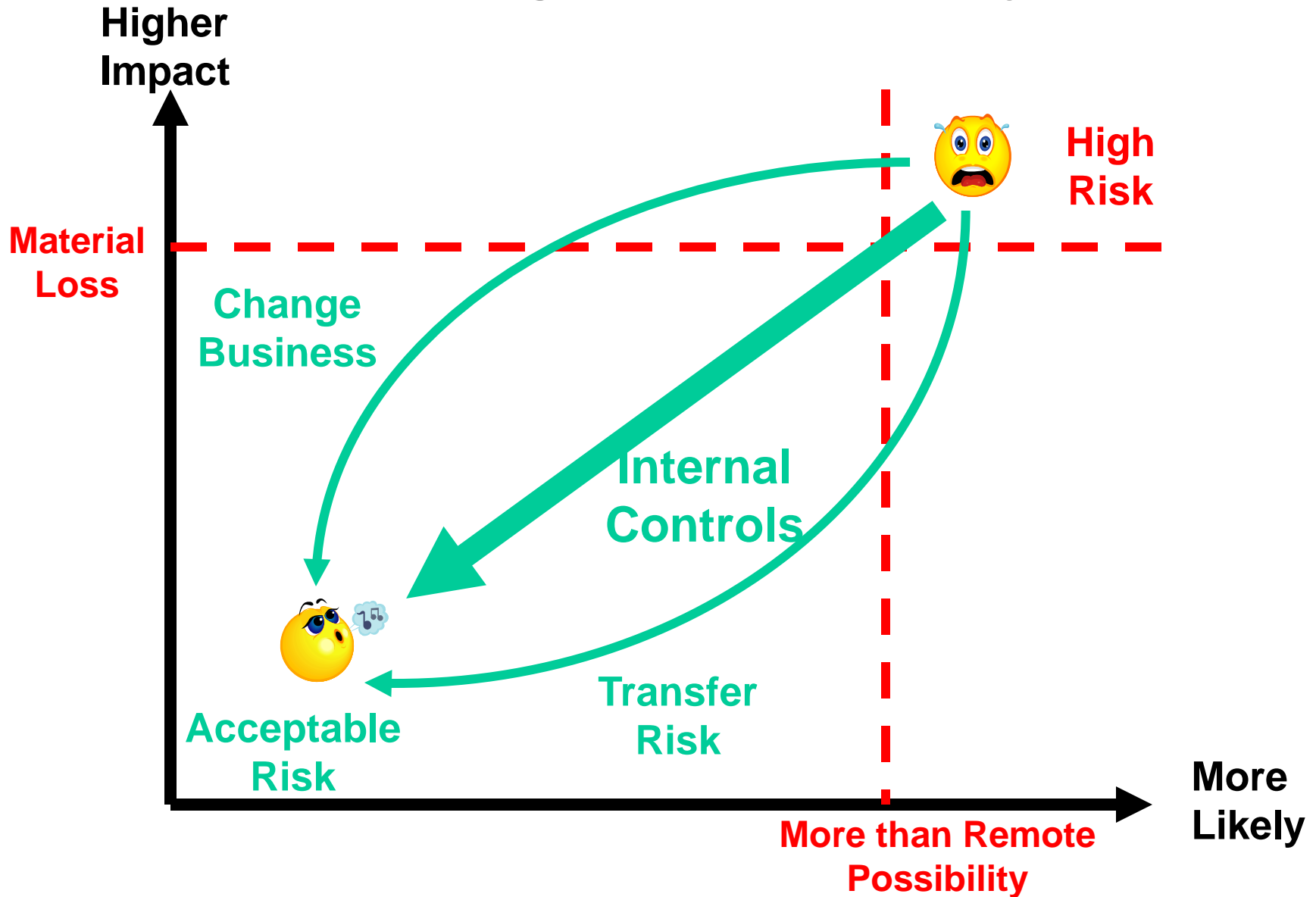
A Focus on what is Important is Essential to Drive Productivity

- Helping your organization improve the Productivity of processes requires hard work and an allocation of scarce audit resources.
- You therefore need to focus on what is most important to audit, and to improve.
- Do you need an audit team focused on creating the most efficient and effective Coffee Brewing Process?

To Improve Your Company's Productivity (E&E) --Focus on Major Risks/Opportunities

- 'Opportunity' and 'Risk' are the flip side of each other.
- The focus is to improve Productivity by mitigating significant risks and/or pursuing significant opportunities.
- Again, Auditors need to focus on what is most important!

Risk Heat Map - Management Should Take Actions to Mitigate Risks to Acceptable Levels



If Auditors Rather Than Management Mitigated Disaster Recovery Risks...



A Maintenance Productivity Focus is only an Example

- This next section is an example of a journey to improve Productivity by an audit function.
- The journey is the important part for you, not necessarily the Maintenance audit scope.
- You would need to analyze your own organization to determine which areas deserve a similar journey.

Repair and Maintenance

- Manufacturing companies can spend hundreds of millions of dollars in R&M
- If R&M is not done well:
 - Frequent equipment breakdown causes higher capital expenditures than needed. (low productivity)
 - It costs more to repair equipment after failure than if maintained in good shape. (low productivity)
 - If critical equipment breaks down, manufacturing stops. No product -- No revenue – No Profit. (low productivity)
 - Poorly maintained equipment can cause poor quality products. This can cause rework, or if not fixed, then customer dissatisfaction. (low productivity)

High Risk/High Opportunity

How Can Auditors Enhance productivity by a Focus on Maintenance?

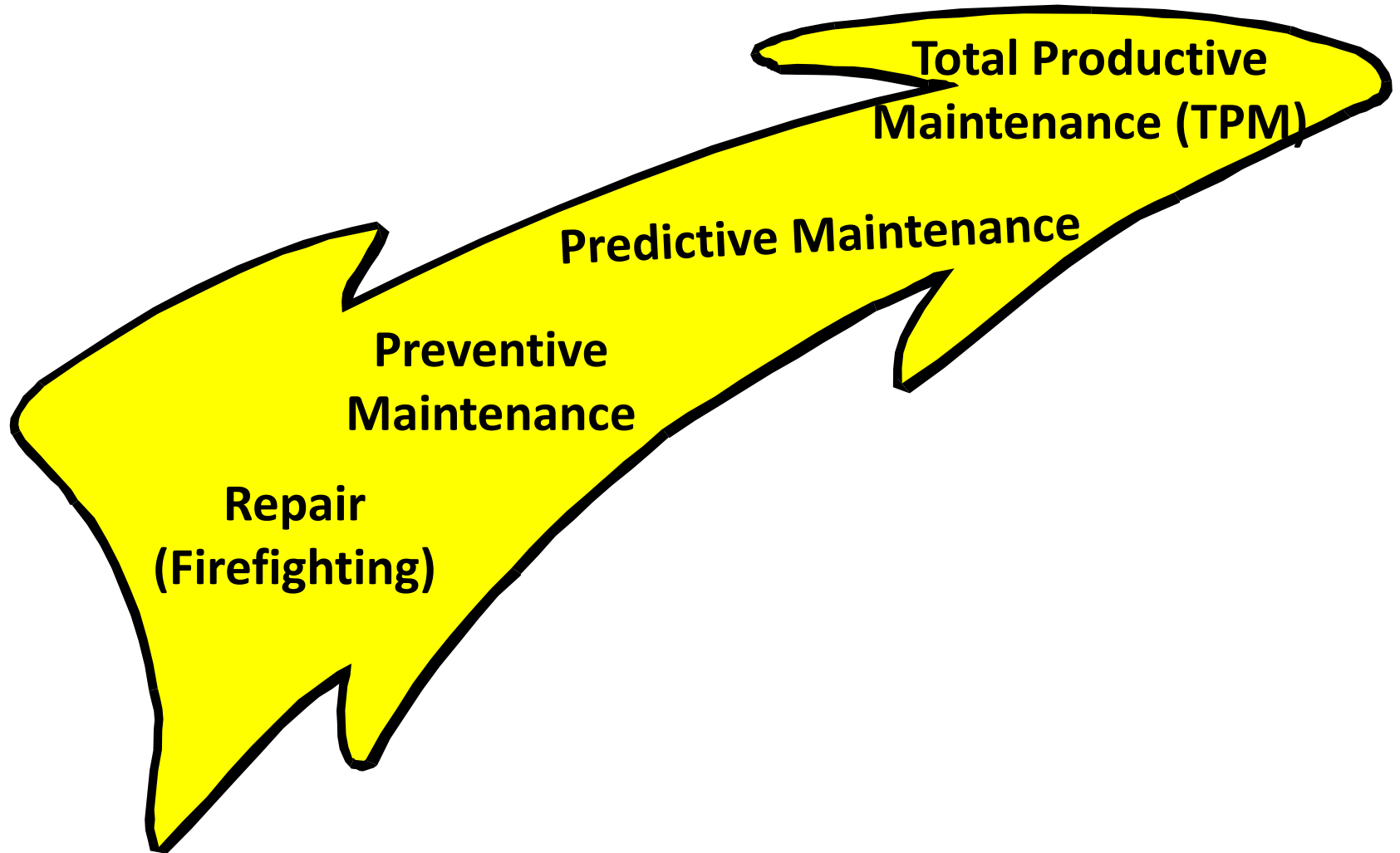
- Most auditors are not technical enough to suggest better ways of specifically performing maintenance on a piece of equipment.
- However, Auditors are experts at well-managed and controlled business processes. With some research, Internal Audit should be able to recommend process improvements that would enhance Productivity in the Maintenance processes.

Hardest Part:
Convincing Management

Maturity of a Maintenance Function

- As in most disciplines, Maintenance could be viewed on a maturity spectrum. The further to the right on the spectrum, the closer to best class practices.
- If you, as an auditor, can assess where on the spectrum your Maintenance organization is, and you know the attributes of more mature Maintenance organizations, then you can recommend changes to improve Productivity .

Maintenance Maturity Spectrum



Maturity Level 1 - Repair (‘Firefighting’)

- The most basic level on the Maintenance spectrum is to schedule Repair after equipment fails. This is very costly! (*Car Engine Example*)
- A sign of low Maintenance maturity is not having metrics to understand the resources (hours/dollars) going into Repair & Maintenance. Also, there is usually a lack of understanding of the true cost/impact during equipment down time.
- Another sign of low maturity is not having organized data on the equipment. Level 1 Maintenance shops probably do not have a computer system to be able to answer these types of questions:
 - How often does a piece of equipment fail?
 - How does it fail?
 - How was it fixed last time?
 - When did it break down last time?
 - How critical is the individual equipment to overall production(bottleneck)?
 - Are spare parts needed with a long-lead-time horizon?
 - Are long-lead-time spare parts available in stock?
 - Does the repair need specialized labor? Specialized facilities?

Probably, a Level 1 Maintenance Organization



Maturity Level 2: Preventive Maintenance

- Proactively fix equipment on a schedule based on assumptions about the life of the equipment. The goal is to replace or refurbish prior to failure.
- The problem is that the replaced item still has life. The discarded parts, with remaining life is waste. (*Car Engine Example*) Preventive Maintenance is expensive, but still much cheaper than Level 1 - Repair.
- Need to balance the waste of refurbishing too early with risk of failure and resulting expensive repair.
- At Level 2, it is essential to have a system with extensive information about the equipment, repair history, criticality, failure modes, needed spare parts, etc.
- Based on the scientific breakdown data, the system would have the scheduled dates for when the Planned Preventive Maintenance events should take place.

Maturity Level 3: Predictive Maintenance

- Evaluate the condition of the equipment by constant monitoring.
- The goal is to perform maintenance at a point, just in time, prior to failure, based on the observation of the equipment. (*Car Engine Example*)
- This is the time when the maintenance activity is more cost-effective and before the equipment loses performance.
- Example: Perform weekly infrared snapshot of the ball bearings of an industrial motor, it is possible to tell by observing 'hot spots' in the ball bearings, that the motor is about to fail within a few weeks. You then schedule maintenance of the motor as soon as possible.
- To evaluate equipment condition, predictive maintenance uses non-destructive testing technologies such as infrared pictures, acoustic test, vibration analysis, sound level measurements, oil analysis, and other specific tests.
- Level 3 implies a fairly mature Maintenance organization. When new equipment is going to be purchased, one of the requirements might be that there are built in gauges signaling the imminent need for Maintenance.

Maturity Level 4: TPM -Total Productive Maintenance

- This is prevalent in companies using the Toyota Production System. In TPM, the equipment operator is trained to perform many of the day-to-day tasks of diagnostics and simple maintenance. (*Car Engine Example*)
- Teams are created that include a technical expert (often an engineer or maintenance technician) as well as operators. The operators are trained to understand the machinery, identify potential problems, and fix them before they can impact production. This decreases downtime and reduces costs of maintenance and production.
- Usually the simpler Maintenance tasks are assigned to the 'lower cost' operators (add oil, tighten belts, replace modular components). The more complex tasks are assigned to the 'expensive' technical expert.
- The employees closest to the equipment (operators) are in the best position to notice odd noises, smells, rough vibrations, etc.
- Level 4 is a proactive approach that aims to identify issues as soon as possible, and prevents problems before they occur.

How Not to Change the Oil Yourself!



Other Good Maintenance Practices

- Management should measure hours spent on planned maintenance, and hours for repair (fire-fighting) once equipment goes down.
- 80% or better of planned hours vs. total hours (including planned and unscheduled): Excellent productivity.
- Below 60% planned vs. total maintenance hours: Many opportunity to improve productivity.
- If Maintenance is scheduled, but it is not completed as scheduled, then poor Maintenance Productivity (and more Repair than needed). Auditors can test the percentage of planned maintenance completed as originally scheduled.
- If doing firefighting maintenance, have a race-car pit-crew mentality. -
- In and out as quickly as possible by being supper prepared, tools, and parts very well organized, and repair steps practiced.
- Every minute that a critical piece of equipment (bottleneck) is down, you loose production. If your sales are constrained by production, this down time can cost a fortune.

Difference in Maintenance Maturity Levels – Audit Conference Room Example

- **REPAIR:** Light bulb burns out during Audit Exit Conference with CFO and interrupts important financial reporting meeting. Emergency call to Building Maintenance. Three days later, bulb is replaced. Company fails SOX.
- **PREVENTIVE:** The estimated life span of the bulb is 1,000 hours. Building Maintenance calculates that at 8 hours per day of use, the bulb should be replaced every 125 days and schedules a maintenance visit in 120 days. However, auditors usually work longer than 8-hour days. Bulb fails sooner than expected. Exit Conference interrupted. Etc., etc.,
- **PREDICTIVE:** Building Maintenance knows that when bulbs flicker, they are likely to fail in the near future. 95 days after bulb was last replaced, during his weekly building walk-through, the Maintenance Manager they see a flickering bulb in the Audit Conference Room. Given how busy the Maintenance Technicians are, the Manager schedules a bulb replacement for next week. When the Building Technician arrives next week, he discovers the bulb burnt out during the Exit Conference. Etc. etc.
- **TPM:** Smarter new CAE hired. She has all auditors trained in TPM and to notice bulb flickering. Audit is allocated one emergency bulb. After much practice and extensive studying, all auditors learn how to change the bulb. Just prior to the critical Exit Conference, a 7'4" tall auditor notices flickering and immediately replaces bulb. Exit Conference goes smoothly!!!

Can You Audit Maintenance Now?

- If you remember these past few slides, you can probably spend 2-3 days at your Maintenance organization, and assess the Maturity Level.
- You can also recommend improvements as described in the higher maturity levels in the spectrum.

Improve Productivity For Your Organization

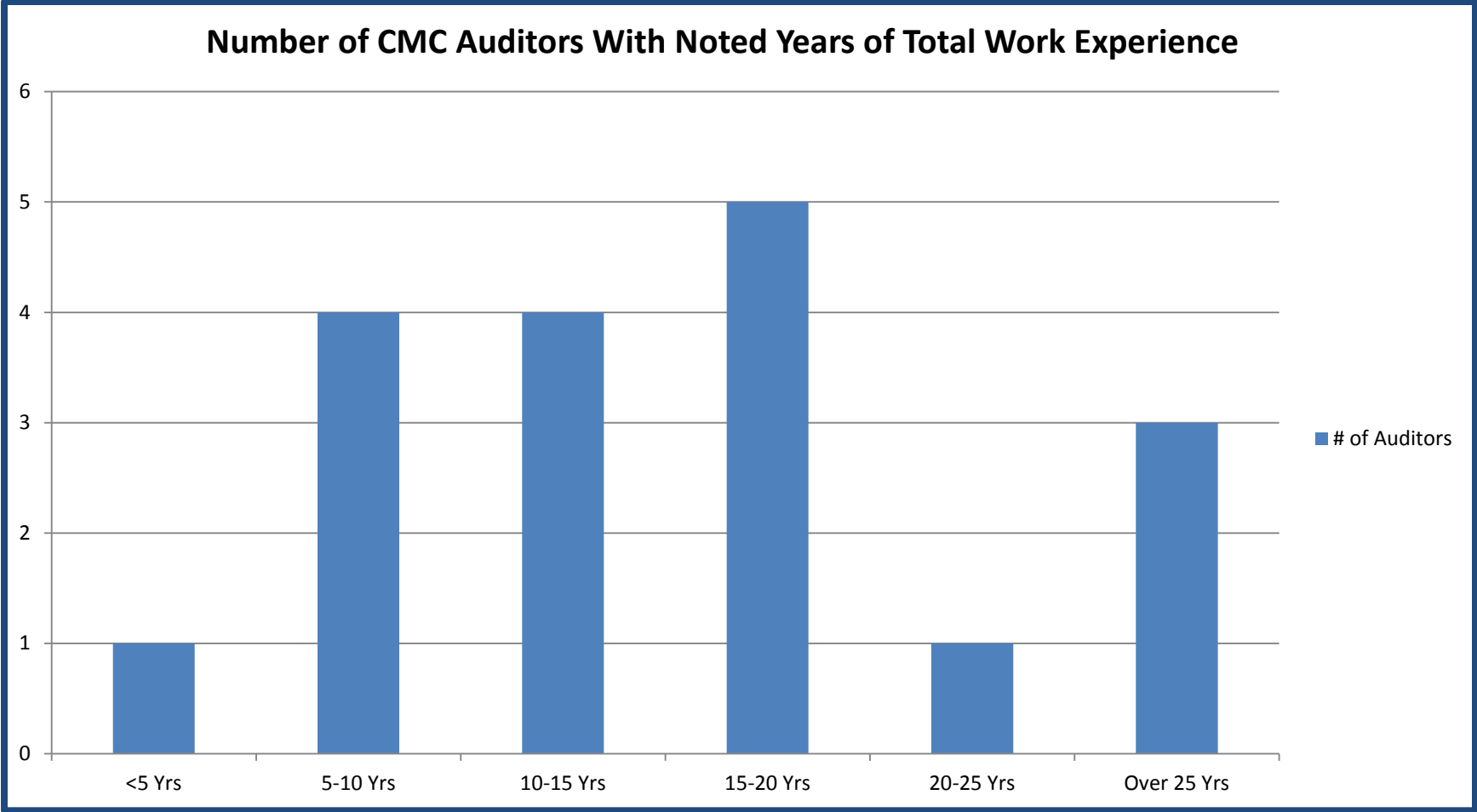
- Identify the business areas that are most important to your business (Risk Heat Map can help)
- Identify sources of waste (Rework) in critical areas.
- Find experts in your company (or outside consultant) who can teach your Audit group the maturity stages of the process from Poor to Best-Class.
- Create a draft audit program – Test it with your expert’s assistance (they can be Guest Auditors).
- Add it as a regular Audit Scope.
- Caution: Don’t try a short cut by borrowing somebody else's audit program. You really need to learn the material yourself by working it.

Productivity for the CMC Internal Audit Department

- Again, think both, Efficiency and Effectiveness.
- To be Effective, choose very capable and qualified auditors who can satisfy ‘process and customer’ objectives.

Percent of Audit Staff Professionally Certified (i.e., CPA, CIA, CISA)	83%
Percent of Audit Staff Professionally Certified or Pursuing a Certification	100%
Percent of Staff Working to Achieve More than One Certification	72%
Total Number of Certifications Achieved or in Progress	40
Percent of Staff With a Master-Level Degree	39%
Percent of Staff With Multilingual Capability	61%

Audit Staff - Relevant Experience



Success Factors for CMC Auditors

- Personal Attributes: Ethical, incisive, business acumen, sound judgment, hard-working, diligent, mature, can multitask, fast-learner, good communicator, team oriented, friendly, decent, fair, calm, diplomatic, persistent, quality orientation, thick-skinned, can 'smell' audit issues, polished (but not too slick...)
- Auditors are 'high potential' employees. Possible future leaders of CMC.
- Focus for Auditors: Help protect CMC & help add value to CMC.
- Understands seriousness of responsibilities to Audit Committee and Mgt.
- Business partner trying to improve controls, processes, and operations. Not a 'policeman' mentality.
- Auditors have a responsibility to conduct themselves in a way that their integrity, objectivity, confidentiality, and competency are not open to question.
- Audit Philosophy: ID business objectives first, then ID risks to achieving objectives, followed by assessing controls to mitigate risks.
- Control Philosophy: Appropriate cost-effective controls based on risk, not always tighter controls
- Must be professionally certified (CIA, CPA, CISA)
- Balance: Analytical & Interpersonal
- Balance: Flexibility & Firmness
- Must be able to shift easily between detail orientation levels: Counts Leaves – Observes Trees – Understands Forest
- Hoped for: Sense of humor. This can reduce conflicts and help manage stress

'Efficiency' for the Audit Staff

- We don't track time by auditor/task to measure efficiency. Instead measure the efficiency of audit processes by their KPI's (Key Performance indicators)
- Audit Department KPI's:
 - Issue Announcement Letters 60 days prior to the Audit Fieldwork commencing
 - Issue draft Audit Observations by the last day of fieldwork
 - Issue final Audit Reports, with management responses, by 15 business days after the Exit conference
 - 90% or better favorable responses to post audit customer satisfaction survey
 - Prepare future audit memo /Completion memo by 30 days past the field work
 - Review all work-papers prior to issuing the Formal Audit Report
 - Managers formally close audits work-papers within 30 days of end of fieldwork
 - 100% of auditors certified or working toward certification (have one year)
 - 40 hours CPE per auditor per year
 - Travel 40%-50% per year

Please Note: At the end of May, I will be leaving CMC to search for a new CAE position.

If you have any questions on the presentation (or leads to a new job!) please contact me at:

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